

WHAT IS CLAIMED IS:

1. An apparatus for calibrating a reception signal of an array antenna in a mobile communication system, comprising:
 - a reference signal generator which outputs a plurality of reference signals having same phases, by calibrating a phase of a locally generated signal; and
 - an antenna array which receives a radio signal through a plurality of antenna paths by a plurality of reference signals, and calibrating distortion of each array antenna path.
2. The apparatus of claim 1, wherein the reference signal generating unit comprises:
 - a local reference signal generator which locally generates a reference signal;
 - an RF converter which converts the reference signal into an RF signal;
 - a splitter which divides the RF signal into as many signals as a number of antennas in the array;
 - a phase detector which detects phase information of the divided signals; and
 - a phase shifter which uniformly controls phases of the divided signals based on the phase information.
3. The apparatus of claim 1, wherein the reference signal generator further comprises a complex conjugate number calculator.

4. The apparatus of claim 3, wherein the complex conjugate number calculator calculates complex conjugate numbers of the divided RF signals.

5. The apparatus of claim 1, wherein the antenna array comprises:
a plurality of antennas for receiving a radio signal;
a front-end part for receiving a reference signal outputted from a reference signal generator and a radio signal received by the antennas;
an RF transmitter for converting a baseband signal into an RF signal and transmitting the RF signal to the front-end part;
an RF receiver for converting the RF signal into a baseband signal; and
a baseband processor calibrating the baseband signal.

6. The apparatus of claim 5, wherein the baseband processor sets a radio signal received through one antenna path as a reference, and multiplies a radio signal received through the other antenna path by a calibration vector of the radio signal set as a reference, thereby performing calibration.

7. The apparatus of claim 1, wherein the antenna array comprises a smart antenna system.

8. A method for calibrating a reception signal of an array antenna system in a mobile communication system, comprising:

outputting a plurality of reference signals having same phases by calibrating a phase of a locally generated signal;

receiving radio signals through a plurality of antenna paths using the plurality of reference signals, and converting the radio signals into baseband signals; and

calibrating the baseband signals.

9. The method of claim 8, wherein outputting the plurality of reference signals comprises:

locally generating a reference signal;

converting the reference signal into an RF signal;

dividing the RF signal into a number of signals;

detecting phase information of the divided signals; and

outputting a plurality of reference signals having same phases by performing phase shifting after the phase information is detected.

10. The method of claim 9, wherein outputting a plurality of reference signals comprises calculating complex conjugate numbers.

11. The method of claim 9, wherein dividing the RF signal includes dividing the RF signal into as many signals as a number of antennas.

12. The method of claim 9, wherein the phase shifting is performed by uniformly

calibrating phases of signals using one of phase information and complex conjugate numbers.

13. The method of claim 12, wherein calibrating phases using the complex conjugate numbers includes multiplying each divided RF signal by a complex conjugate number of said each signal.

14. The method of claim 8, wherein calibrating the baseband signal comprises:
setting a radio signal received through one antenna path as a reference; and
multiplying a radio signal inputted through the other antenna path by a calibration vector of the radio signal set as a reference.